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ABSTRACT

Part of a larger study investigating the longitudinal effects of prematurity, illness, and hospitalization, this study focuses on parent perceptions of their infants at 2, 4, and 6 months of age, with age being corrected for conceptional age at birth. It was hypothesized that neonatal condition and age of infant at the time of measurement would affect parents' perceptions of their child. Four groups of infants were included in the study: (1) 17 pre-term infants whose gestational ages were less than 36 weeks and who experienced prolonged hospitalization after birth, (2) 12 full-term infants who were diagnosed at birth as having some type of illness and hence also experienced prolonged hospitalization, (3) 8 full-term healthy infants who were hospitalized for up to 8 days as a result of their mothers having an infection, and (4) 16 full-term healthy control infants. At each age following birth, a questionnaire modeled after a measure employing a 7-point semantic differential scale was completed; parents rated their baby and an average baby of the same age along 10 items, such as calm versus excitable, strong versus weak, happy versus unhappy, and so on. Results are discussed. In general, high-risk infants were perceived as being different from the healthy control infants, and these differences persisted through 6 months of age. (RH)

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The Effects of Prematurity and Illness on Parents' Perceptions of Their Infants*

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Development of affective, social relations between infants and parents is thought to be critical to the subsequent development and well-being of the child. One part of the complex parent-child interaction process is how parents perceive their newborn (Broussard & Hartner, 1970). Such perceptions may be affected by perinatal risk factors, and may in turn affect parental attitudes and treatment of the infant (Bidder, 1974; Boukydis, 1981).

While there has been much speculation about the contribution of medical complications to parents' perceptions of their infants, little systematic research has been done on the subject. This paper focuses on how parents' perceptions are affected by their child's early condition, and how these perceptions change over time as the infant develops and usually overcomes his or her prenatal problems.

The research which is presented here is part of a larger study investigating the logitudinal effects of prematurity, illness, and hospitalization (see figure 1). Specifically, it focuses on parent perceptions of their infants at 2, 4, and 6 months of age, with age being corrected for conceptional age at birth. It was hypothesized that neonatal condition and age of infant at the time of measurement would affect parents' perceptions of their child.

Four groups of infants were included in the study (see figures 2 and 3): (1) 17 preterm (PT) infants (9 males, 8 females) whose gestational ages were less than 36 weeks and who experienced prolonged hospitalization after birth; (2) 12 full-term infants (6 males, 6 females) who were diagnosed at birth as having some type of

illness and hence also experienced prolonged hospitalization (FT/ICN); (3) 9 full-term healthy infants (7 males, 1 female) whose mothers contracted an infection during delivery, and were thus hospitalized for up to 8 days (FT/M); (4) 16 full-term healthy control (FT/C) infants (8 males, 8 females). It should be noted that the PT and FT/ICN groups were designated as the high-risk infant groups, while the FT/M and FT/C groups served as the healthy control groups. Moreover, prematurity, illness, and hospitalization varied systematically across the four groups.

Overall infant characteristics included: (1) Caucasion; (2) singleton birth; (3) first-born; (4) Apgar at 5 minutes of 7 or greater; (5) no known central nervous system deficiency. Overall parent characteristics included: (1) intact family; (2) maternal age between 20-33; (3) middle socio-economic status.

At each age (2, 4, and 6 months) parents completed a questionnaire (see figure 4) modelled after the Broussard & Hartner questionnaire (1970), which employed a 7-point semantic differential scale in which parents were to rate their baby (at his or her present age) and the average baby of the same age along ten items (calm vs. excitable; sleeps well vs. sleeps poorly; strong vs. weak; quiet vs. cries a lot; eats well vs. eats poorly; alert and active vs. passive; normal vs. different; large for age vs. small for age; happy vs. unhappy; and causes parent no worry vs. causes parent a lot of worry).

One-way analyses of variance and contrast tests were employed to assess the effects of group on parental perceptions at each age.

To obtain overall composite scores, ratings of the infants across all ten items were summed and averaged for each group at each specific age. To obtain scores on individual items, ratings of the infants on each specific item were averaged for each group at the ages of 2, 4, and 6 months.

In addition to the analyses of variance, planned comparisons were performed which contrasted the groups in such a way that it was possible to isolate the effects of prematurity, illness, and hospitalization on parental perceptions. In particular, the effects of prematurity were assessed by contrasting the performance of the PT group with the performance of the other three groups. The effects of illness were assessed by contrasting the two groups in intensive care (PT and FT/ICN) with the two healthy groups (FT/M and FT/C). Finally, the effects of hospitalization were assessed by contrasting the performance of the three hospitalized groups (PT, FT/ICN and FT/M) with the healthy control group (FT/C).

Analysis of overall composite scores indicates that regardless of the condition of the infants at birth, parents consistently rated their infants in favorable terms at each age measured. In addition, parents in all groups rated their infants more positively than the average child of the same age. However, there were no group differences in overall composite scores.

Although overall scores did not show significant group differences, we wondered if perinatal conditions would affect individual items in particular ways. To look at this, we repeated the

analyses described above for each of the 10 items. Only these items which revealed significant group differences are reported here: sleeps well vs. sleeps poorly; strong vs. weak; eats well vs. eats poorly; and big for age vs. small for age.

First, our analysis of ratings of sleeping behavior (see figure 5) revealed no significant group differences until 6 months, when preterm infants received a significantly different rating than the other three groups combined, t (46)= 2.524, $p<.02$. Specifically, PT infants received a more positive rating (i.e., "sleeps well") in terms of sleeping behavior.

Ratings of strength (see figure 6) revealed a significant difference between groups at 2 months of age, F (3, 45) = 3.379, $p<.05$, with the healthy infants (FT/M and FT/C) receiving more positive ratings than sick infants (PT and FT/ICN), t (45) = 3.044, $p<.005$. At 4 months of age, no significant differences were obtained. However, at 6 months, significant differences again appear between the two groups of sick infants and the two healthy groups, t (46) = 2.569, $p<.02$, with healthy infants (FT/M and FT/C) again rated in more positive terms.

Parental perceptions of eating behavior (see figure 7) did not reveal significant differences at 2 months. However, at 4 months, significant differences were obtained, F (3, 46) = 2.99, $p<.05$, with sick infants (PT and FT/ICN rated as eating less well than the healthy infants (FT/M and FT/C), t (46) = 2.954, $p<.005$. This dichotomy also remained at 6 months of age, t (46) = 2.233, $p<.05$.

Finally, in perceptions of size (see figure 8), at 2 months, a significant difference between groups was obtained, F (3, 45) = 4.708, $p<.01$, with preterm infants being rated as smaller than all of the other infant groups combined, t (45) = 3. 561, $p<.001$. In addition, contrasting ratings of the high risk infant (PT and FT/ICN) to healthy infants also produced significant differences, with the high risk infants being rated as smaller than the healthy infants, t (45) = 2.77, $p<.01$. These same differences between groups remained statistically significant at four months, F (3, 46) = 3.947, $p<.02$, as did differences between preterm infants vs. the remaining groups, t (46) = 2.533, $p<.02$, and differences between sick (PT and FT/ICN) vs. healthy infants, t (46) = 3.326, $p<.005$. At 6 months, however, significant differences dropped out as rating of sick full-terms infants changed from "fairly large" to "relatively small" to "average" in size.

In conclusion, significant differences were found between groups on ratings of sleeping and eating behaviors, as well as in perceptions of size and strength of the infants, thus supporting the hypothesis that the neonatal condition of infants affects parental perceptions of these infants. In general, high risk infants were perceived differently from the healthy control infants, and these differences persisted through 6 months of age. It seems likely that such differences in perceptions would tend to affect the quality of parent-child interactions. We hope to have further information on this

relationship as we continue the longitudinal study of the development of this group of infants.

Broussard, E. R. & Hartner, M.S.S. Maternal Perception of The Neonate as related to development. Child Psychiatry and Human Development, 1970 1 16-25.

Bidder, R.T., Crowe, E. A., & Gray, O. P. Mothers' attitudes to preterm infants. Archives of Disease in Childhood, 1974, 49, 766-769.

Boukydis, C. F. Adult perception of infant apperance: A review. Child Psychiatry and Human Development, 1981, 11, 241-254.

Fig. 1

FOLLOW-UP PROGRAM: MEASURES AND PERIODS FOR ASSESSMENT

Measures	Admission	Discharge	Age (in months)* 2	4	6	9	12	18
What Infant Brings								
State	X	X						
Medical Condition	X	X	X	X	X	X	X	X
Physical Status	X	X	X	X	X	X	X	X
Neurological Status			X	X	X	X	X	X
Neonatal Behavioral Assessment Scale		X						
Infant Temperament			X	X	X			X
What Parent Brings								
Attitudes and Expectations			X	X	X			X
Interactive Qualities of Dyad								
Parmelee	X							
Mother-Infant Interaction			X	X	X	X	X	X
Developmental Outcomes								
Denver			X	X	X	X	X	X
Bayley								X
Visual Preference			X	X	X			
Delayed Recognition			X	X	X			
Object Permanence						X	X	X
Attachment			X	X	X	X	X	X
Language Assessment								X

*conceptional age correction

Figure 1. Descriptive Characteristics of Subjects by Group

DESCRIPTIVE CHARACTERISTICS OF GROUPS

GROUP	N	MEAN GESTATIONAL AGE (WKS)	MEAN BIRTH WEIGHT (GM)	MEAN LENGTH OF HOSPITALIZATION (DAYS)
Preterm	17	33.6	2192	22
Male	9	33.9	2209	19
Female	8	33.4	2061	24
Full Term/Sick	12	40.0	3298	15
Male	6	39.7	3452	11
Female	6	40.2	3163	18
Full Term/Sick Mother	8	40.1	3624	7
Male	7	40.0	3685	7
Female	1	40.3	3482	8
Full Term/Control	16	40.4	3415	4
Male	8	40.5	3515	4
Female	8	40.2	3317	3

Figure 3. Perinatal Characteristics of Groups

	Preterm Birth	Illness	Prolonged Hospitalization
PT	+	+	+
FT/ICN	-	+	+
FT/M	-	-	+
FT/C	-	-	-

Figure 4. Parent Perception Questionnaire: At each Age (2, 4, and 6 months) Parents were Asked to Rate their Baby (at his or her Present Age) and the Average Baby of the same age.

MY CHILD NOW

calm	1	2	3	4	5	6	7	excitable
sleeps well	1	2	3	4	5	6	7	sleeps poorly
strong	1	2	3	4	5	6	7	weak
does not cry/quiet	1	2	3	4	5	6	7	cries alot
eats well	1	2	3	4	5	6	7	eats poorly
alert	1	2	3	4	5	6	7	passive
normal	1	2	3	4	5	6	7	different
big for age	1	2	3	4	5	6	7	small for age
happy	1	2	3	4	5	6	7	unhappy
causes me no worry	1	2	3	4	5	6	7	causes me alot of worry

THE AVERAGE CHILD

calm	1	2	3	4	5	6	7	excitable
sleeps well	1	2	3	4	5	6	7	sleeps poorly
strong	1	2	3	4	5	6	7	weak
does not cry/quiet	1	2	3	4	5	6	7	cries alot
eats well	1	2	3	4	5	6	7	eats poorly
alert	1	2	3	4	5	6	7	passive
normal	1	2	3	4	5	6	7	different
big for age	1	2	3	4	5	6	7	small for age
happy	1	2	3	4	5	6	7	unhappy
causes me no worry	1	2	3	4	5	6	7	causes me alot of worry

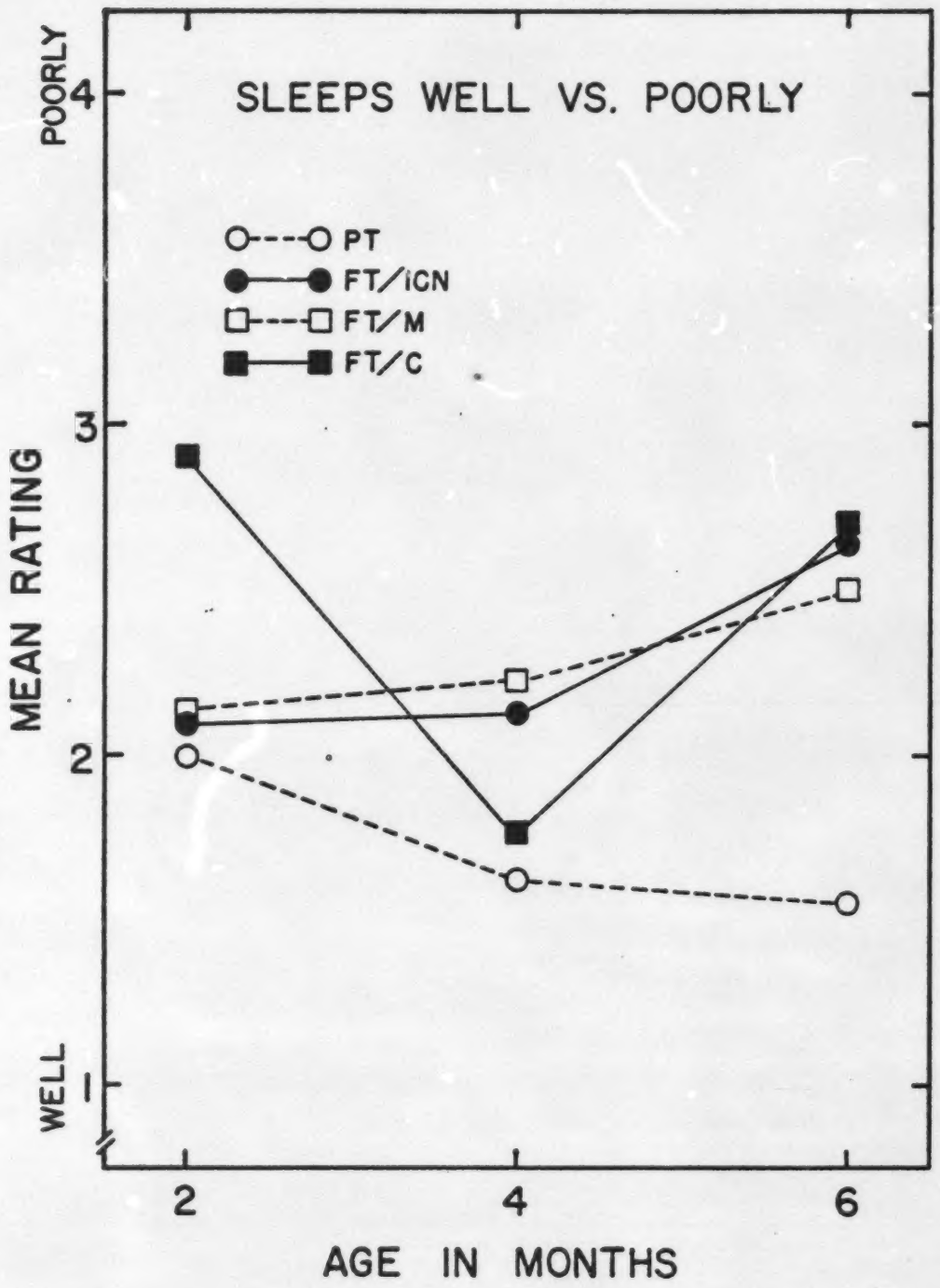
SLEEPS WELL VS. POORLY
PT
FT/ICN
FT/M
FT/C
POORLY
WELL
MEAN RATING
4
3
2
1
2
4
6
AGE IN MONTHS

Figure 5

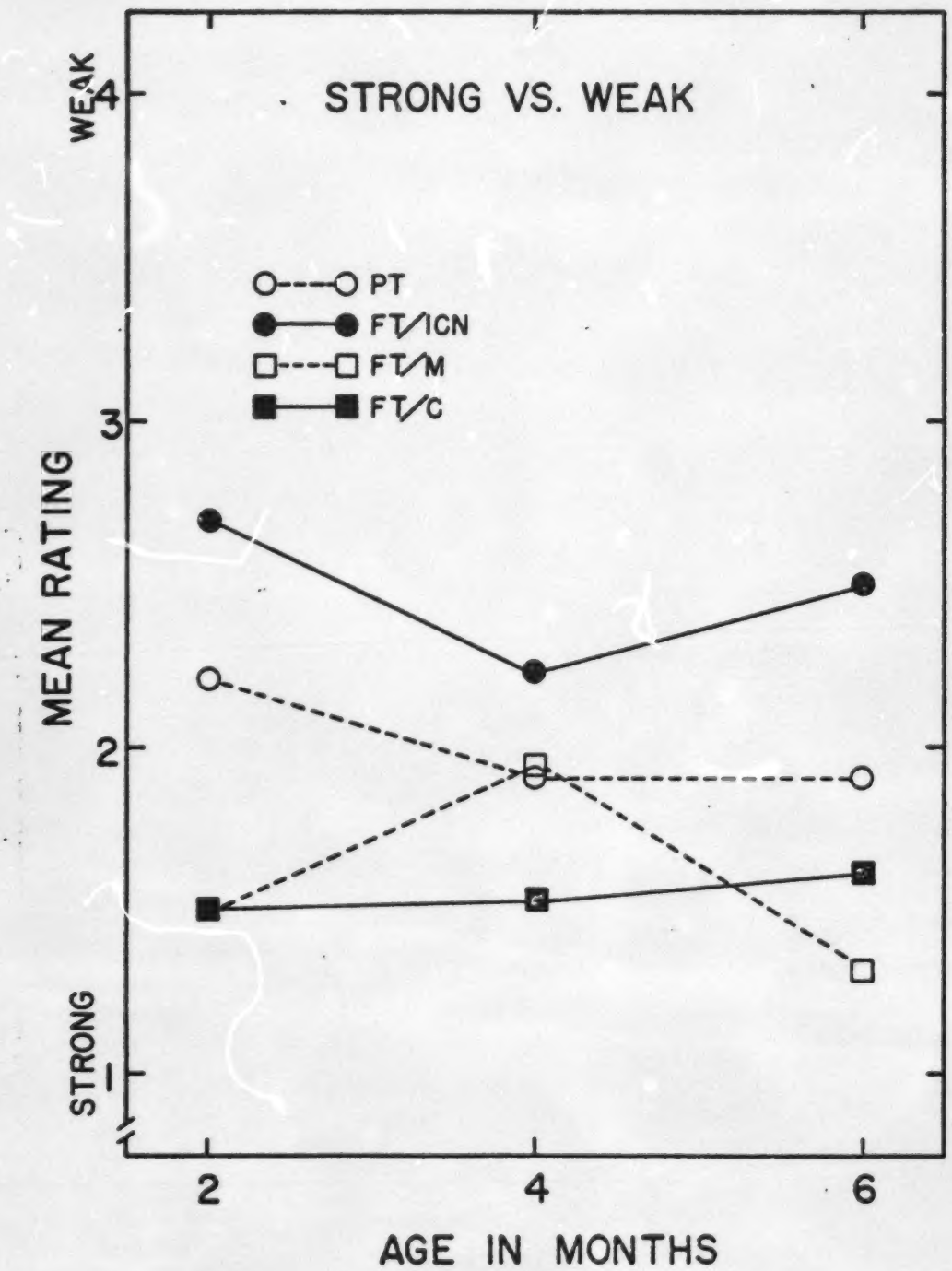
STRONG VS. WEAK
WEAK
STRONG
MEAN RATING
4
3
2
1
PT
FT/ICN
FT/M
FT/C
2
4
6
AGE IN MONTHS

Figure 6

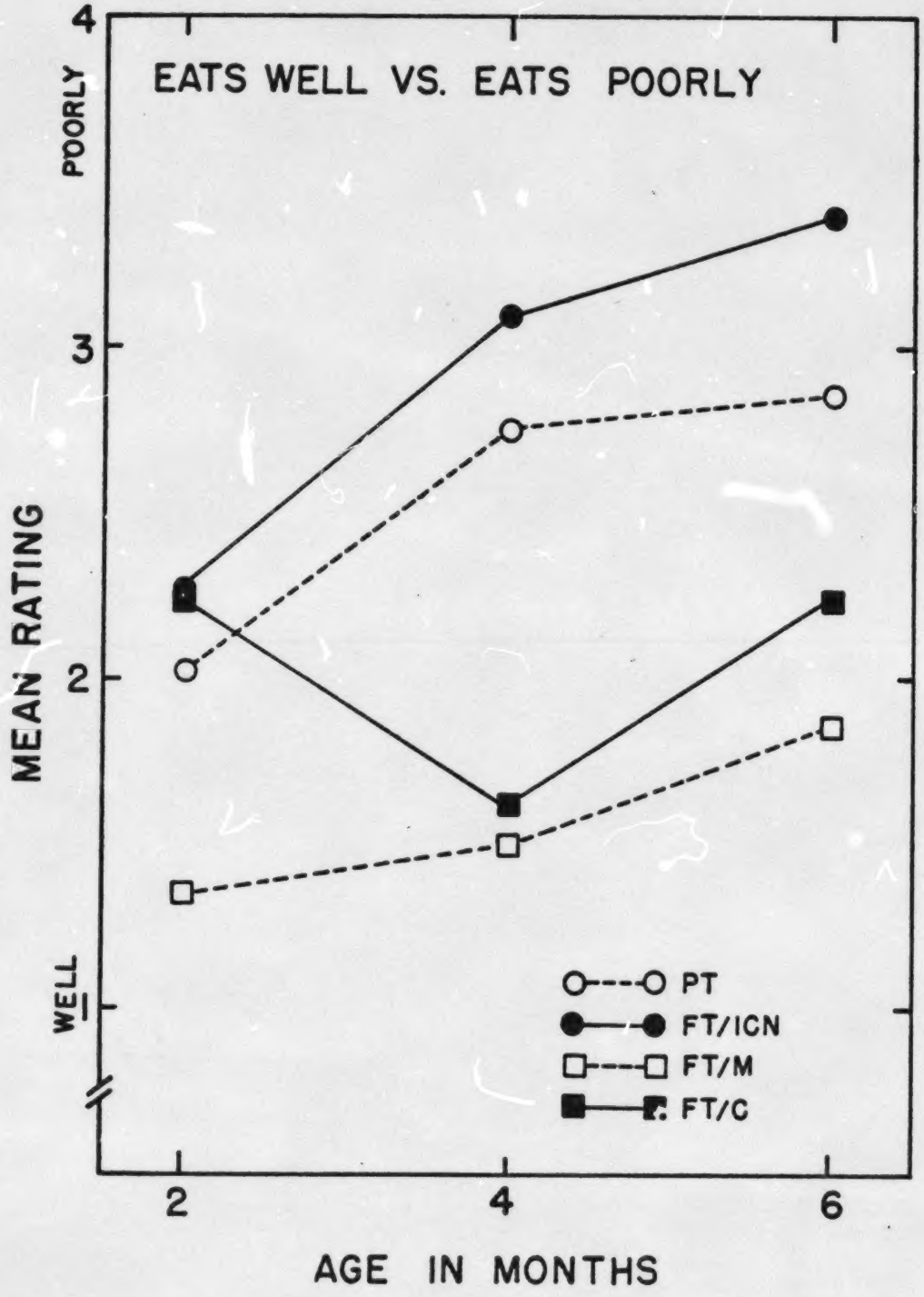
EATS WELL VS. EATS POORLY
MEAN RATING
POORLY
WELL
4
3
2
PT
FT/ICN
FT/M
FT/C
2
4
6
AGE IN MONTHS

Fig. 7

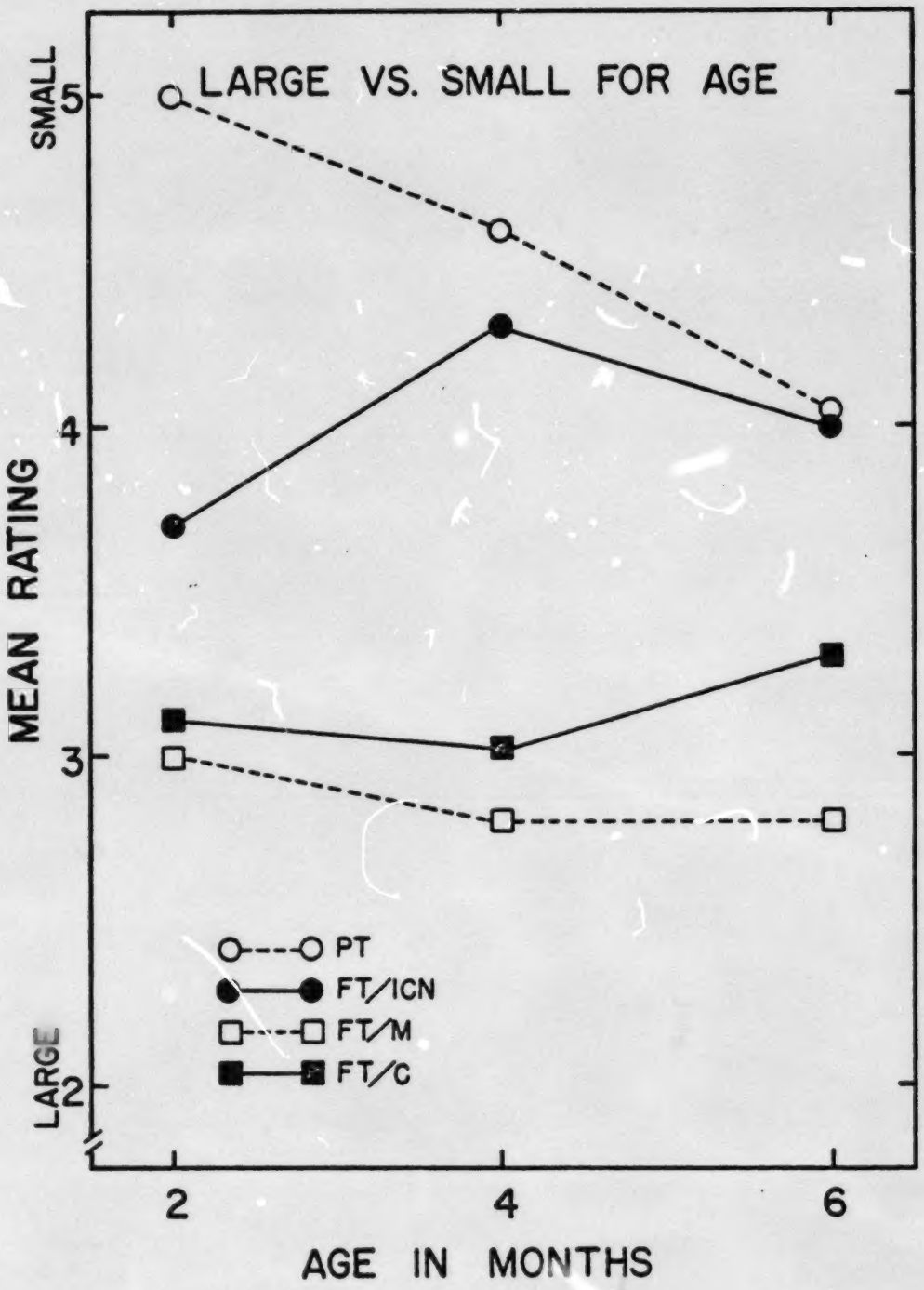
LARGE VS. SMALL FOR AGE
SMALL
5
4
3
2
LARGE
MEAN RATING
PT
FT/ICN
FT/M
FT/C
2
4
6
AGE IN MONTHS

Figure 8